## Non-Technical Abstract

Coronary artery disease (CAD) due to arteriosclerosis, or hardening of the arteries, affects more than 60 million Americans and is a leading cause of death in the United States. According to the American Heart Association (AHA), chest pain, or angina pectoris, affects approximately 6.2 million Americans currently and approximately 300,000 new cases are diagnosed each year. Current treatment options for CAD include drug therapy which is usually life-long, can be costly, and may require hospitalization for invasive procedures, such as angioplasty (dilating the vessel with a catheter) or bypass surgery. According the AHA approximately 480,000 angioplasties and nearly 600,000 bypass surgeries are performed each year in the United States to treat CAD. The primary objective of this study is to evaluate the safety and dose-limiting toxicities of VLTS-589 in the treatment of patients with CAD. VLTS-589 is a non-viral, plasmid-based human Developmentally regulated Endothelial Locus (Del) -1 therapy. In preclinical animal models that mimic normal and poor circulation in the heart, VLTS-589 has been shown to be safe when administered in large doses and produce new capillaries and vessels in the heart. In addition, in preclinical animal models that mimic the poor circulation in the lower extremities of patients with hardening of the arteries in their legs, VLTS-589 has been shown to stimulate development of new circulation and improve exercise tolerance. VLTS-589 is administered by retrograde intravenous (rIV) injection into the venous system of the heart.

Toxicology studies in rabbits and pigs indicate that both repeated intramuscular and bolus intravenous administrations of VLTS-589 in peripheral veins as well as rIV administration in pig hearts are without serious adverse effects.

The proposed phase I trial is a dose escalation study designed to evaluate the safety profile, and determine any toxicities that might be associated with the rIV administration of VLTS-589.